

# CURRICULUM VITAE

## RICHARD ALLAN CARCHMAN

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### PERSONAL INFORMATION:

BIRTHDATE:	February 18, 1943	HOME ADDRESS:
BIRTHPLACE:	Queens, New York	4451 Tabscott Road
CITIZENSHIP:	United States	Columbia, Virginia 23038
MARITAL STATUS:	Married	
WIFE:	Susan M.D., Ph.D., J.D.	
CHILDREN:	Evie (born 1979)	
	Megan (born 1981)	

### EDUCATION:

DEGREE	DATE	MAJOR	SCHOOL
Postdoctoral	5/74	Molecular Biology	Natl. Inst. of Health (Dr. I. Pastan)
Ph.D.	6/72	Pharmacology	SUNY Downstate Med Ctr. (Dr. R. Rubin)
B.S.	6/66	Biology/Chemistry	Long Island University

**HONORS:** Research Career Development Award (NIH), (1979-1984)  
 NIH Predoctoral Fellowship  
 NIH Postdoctoral Fellowship  
 U. S. Environmental Protection Agency Award  
 AACR Foundation Charter Member of the 2003 President's Circle

### POSITIONS HELD:

INSTITUTION	DEPARTMENT	RANK	DATES
Solveritas	Biotechnology Center: MCV/VCU	Principal	2002
Philip Morris USA	Research, Development & Engineering	Retired Vice President	2/1/99
Philip Morris USA	Research, Development & Engineering	V.P. RD&E	9/98-2/99
Philip Morris USA	Worldwide Scientific Affairs	V.P. Worldwide Sci. Affairs	12/97-8/98
Philip Morris USA	Research and Development	V.P. Sci. Affairs	11/96-11/97
Philip Morris USA	Research and Development	Group Director Sci. Affairs	9/96-10/96
Philip Morris USA	Research and Development	Director Sci. Affairs	10/92 - 8/96
Philip Morris USA	Research and Development	Manager	2/91 -9/92
Philip Morris USA	Research and Development	Principal Scientist	12/88 -2/91
Philip Morris USA	Research and Development	Consultant	1986-1987
MCV/VCU	School of Medicine	Affiliate Graduate Faculty Member	2001- Present
MCV/VCU	Pharmacology/Toxicology	Affiliate Professor	12/88 - 2000
	Biostatistics	Affiliate Professor	12/88 - 2000
MCV/VCU	Massey Cancer Center	Associate Director	10/88 - 12/88
MCV/VCU	Pharmacology/Toxicology	Professor	7/86 - 12/88
MCV/VCU	Massey Cancer Center	Assoc. Scien. Dir.	11/86 - 10/88
MCV/VCU	Pharmacology/Toxicology	Associate Professor	7/81 - 6/86
MCV/VCU	Biostatistics(joint appointment)		2/85 - 1988
MCV/VCU	Biology (joint appointment)		9/83 - 1988
MCV/VCU	Pharmacology/Toxicology	Assistant Professor	5/74 - 6/81
NIH, NCI	Lab Molecular Biology	Postdoctoral Fellow	9/72 - 5/74
SUNY, Downstate	Pharmacology	NIH Predoct. Fellow	9/68 - 8/72
Columbia Univ.	Inst. for Cancer Res.	Tech. Res. Assistant	9/64 - 8/68

**MEMBERSHIPS - SCIENTIFIC, HONORARY AND PROFESSIONAL SOCIETIES:**

American Society of Pharmacology and Experimental Therapeutics  
Reticuloendothelial Society  
American College of Toxicology  
International Union of Pharmacology, Toxicology Section  
New York Academy of Sciences  
Southeastern Regional Cancer Researchers  
Drug Information Association  
Sigma Xi  
Society of Toxicology  
Society of Toxicology Chemical/Biological Terrorism Resource Registry  
American Association for Cancer Research  
Center for Innovative Technology, Industrial Advisory Board, State of VA  
State Council for Higher Education, Industrial member for Selecting Outstanding Teacher/Professor, State of VA

**PROFESSIONAL ACTIVITIES:****NATIONAL/INTERNATIONAL:**

Scientific Submissions to: US OSHA-1996, CalEPA-1997, National Toxicology Program-1998 (also presented to National Toxicology Program committee)  
National Academy of Science/National Research Council Committee - 1998  
Chairman, Board of Directors, Center for Indoor Air Research - 1998  
Health Canada Expert Panel - 1998  
National Institute of Environmental Health Sciences Training Grant (MCV/VCU) - 1998

**Editorial and Journal Reviewer**

Reviewer for Journal of Immunology  
Reviewer for the Journal of Leukocyte Biology  
Reviewer for the Journal of Pharmacology and Experimental Therapeutics  
Reviewer for the American Society of Pharmacology and Toxicology  
Reviewer for Cancer Research  
Reviewer for Biochemistry  
Reviewer for Biochemical Biophysics ACTA  
Editorial Advisory Board for Advances in Modern Environmental Toxicology  
Editorial Board, Toxicology and Industrial Hygiene  
Reviewer for Food and Chemical Toxicology

**Review Committees**

Reviewer for Research Proposals for the Alberta Heritage Foundation for Medical Research - Canada  
Expert Panel for PHS/HHS, Center for Disease Control  
Environmental Health and Injury Control Scientific Advisor to the Virginia Environmental Endowment Foundation  
Reviewer for Research Proposals for the Center for Alternative Animal Research, Johns Hopkins University  
NIAID Special Review on Cytomegalovirus National Institute on Drug Abuse Special Review Committee (AIDS)

**Meetings**

Co-Chairman, 2004, Society of Toxicology, Baltimore, MD, Risk Assessment Section  
Co-Chairman, 1988 FASEB meetings, Las Vegas, Nevada  
Chairman, "Design, Implementation and Analysis of Drug Interaction Studies," 1987 ASPET meetings, Honolulu, Hawaii  
Chairman, Virginia Institute of Marine Science (VIMS)/Massey Cancer Center Symposium on Immunology/Toxicology/Cancer, Richmond, Virginia (1986)  
Co-Chairman, Target Organ Toxicity (Endocrine), National Toxicology Program (1984) International Union of Pharmacology (IUPHAR), Section in Toxicology Program Committee, American College of Toxicology

**University Committees:**

MCV/VCU Cancer Center Member Reticuloendothelial System - Medical School  
Recombinant DNA Committee  
Dental Research Committee  
Grievance Committee

Cancer Research Planning and Development Committee, Massey Cancer Center  
 Director - Leukocyte Cell Biology Program, Massey Cancer Center  
 Committee on Committees  
 Associate Scientific Director, Massey Cancer Center  
 Member, AIDS Symposium Conference Planning Committee  
 Admissions Committee  
 Advisor to first year students  
 Alternative Language Requirement Committee  
 Chairman, Comprehensive Exam Committee  
 Chairman, Promotion Committee for Dr. B. R. Martin (School of Basic Health Sciences, 1987)  
 Member, Promotion & Tenure Committee for Dr. F. Cabral (School of Basic Health Sciences, 1987)  
 Member, Promotion & Tenure Committee for Dr. D. Gewirtz (School of Basic Health Sciences, 1987)  
 Member, Promotion & Tenure Committee for Dr. C. Gennings (School of Basic Health Sciences, 1988)  
 Member, Promotion Committee for Dr. S. Yanovich (School of Medicine, 1988)  
 Member, Promotion & Tenure Committee for Dr. L. Kaplowitz (School of Medicine, 1988)  
 Member, Promotion Committee for Dr. M. Kalimi (School of Health Sciences, 1988)  
 Chairman of Grievance Committee, School of Basic Health Science on Dr. Hsu and Dr. Macrina (1988)  
 Four year I & I Committee  
 Member Promotion Tenure Committee for Dr. K. L. White, Jr. (School of Basic Health Sciences), 1990.

#### **GRADUATE STUDENTS TRAINED:**

##### **Predotorals:**

Estelle Goodell (Assistant Professor Basset/Columbia University)  
 Debra Laskin (Professor and Chair, Rutgers University)  
 Bernard Debski (Private Practice)  
 James Charles (Deceased)  
 Bonita Smith (NIH)  
 Barbara Kelly (US Government)  
 James Gaut (Postdoctoral Univ. of Rochester, N.Y.)  
 Dr. Richard Solana (Industrial)  
 Karen Iorio (ADAMA)  
 Michael Shakarjian (Industrial)  
 Dr. Ellen Byrne (Ass't Professor, School of Dentistry)  
 Todd O'Hara (Research Veterinarian)  
 Debbie Koller (Industrial)  
 Gerry Nixon (Industrial)  
 Stephanie Meadows (Industrial)  
 Van Nguyen (NIH)  
 Susan Parker (MCV)  
 Michelle Casey (Industrial)  
 Adam Hamm (Industrial)  
 Leighann Stork (MCV)

##### **Co-Advisor:**

David End (Industrial)  
 Edward Carmines (Industrial)  
 Richard Lane (Industrial)

##### **Predotoral Committees:**

Has been or is a member of 50 Ph.D. faculty advisory committees in the Departments of Pharmacology/Toxicology, Biochemistry, Physiology/Biophysics, Anatomy, Microbiology/Immunology and Biostatistics.

##### **Postdoctorals:**

William Warner (Professor, NYU)  
 David Seyler (Assistant Professor, Columbia Hospital, Georgetown Univ.)  
 Joseph Montes (Red Cross)  
 Colette F. Strand (Canada - Health & Safety)

**Master of Science:**

Jennifer Horn (M.S.)  
Charu Krishnamuvthy (M.S.)  
Maria Shulletta (M.S.)  
Cindy Boswell (M.S.)

**Research Associates:**

Paul Klykken (Industrial)  
Robert Sturm (Deceased)  
Carl McCrady (Private Clinical Practice)  
Caroline Kramer (Private Clinical Practice)

**Research Assistant:**

Fay Kessler

**Scientists:**

Dr. Paul Baron (Sloan Kettering, Surgical Oncology)  
Dr. A. A. Fowler, III (Chief of Pulmonary Medicine, MCV)  
Dr. Cecile Rose (Occupational Medicine)  
Dr. Scott Woogen (Private Clinical Practice)  
Dr. Gita Massey (Pediatrics, Hematology, Oncology, MCV)  
Dr. Li Fei (P.R. of China)  
Dr. Toncred Styblo (Surgical Oncology, MCV)  
Dr. Zhi Gong Lin (P.R. of China)

**ACTIVITIES - July-December 1988:****Teaching:**

MI - Cell Biology of AIDS - 1 hour  
MII - Antimicrobials and Antiparasites - 7 hours  
General Princ. Tox. Mutagen/Carcin. - 4 hours  
Biochemical Pharm. - Prot. Kinases - 1 1/2 hours  
Microbial Biotechnology/Microbiology 691 - 3 hours

**Reviewed - Scientific Reports:**

Health Assessment Documents for EPA - Phthalate Esters  
ATSDR/CDC-1,2-dichloropropane  
Health Canada - Development of Potentially Less Hazardous Cigarette - 1998

**Edited - Journal of the American College of Toxicology (Vol. 7, No. 7, 1988):**

Berenbaum, M.C.: Isobolographic, Algebraic, and Search Methods in the Analysis of Multiagent Synergy, pp. 17-28.

Staniswalis, J.G., and McCrady, C.W.: The Use of Kernel Estimators in Describing Human T Lymphocyte Proliferation Induced by Phorbol Esters and Ca Ionophore, pp. 29-41.

Wessinger, W.C., and Evans, E.B.: Modeling Multiple Agent Interactions in Behavioral Pharmacology, pp. 43-52.

Carter, W.H., Jr., Gennings, C., Staniswalis, J.G., Campbell, E.D., and White, K.L., Jr.: A Statistical Approach to the Construction and Analysis of Isobolograms, pp. 53-63.

Solana, R.P., Carter, W.H., Jr., Wilson, J.D., Chinchilli, V.M., and Carchman, R.A.: Qualitative Evaluation of Sister Chromatid Exchanges Elicited by Combinations of Genotoxic Compounds Using Response Surface Methodology, pp. 65-76.

Gessner, P.K.: A Straightforward Method for the Study of Drug Interactions: An Isobolographic Analysis Primer, pp. 77-102.

Gennings, C., Carchman, R.A., Carter, W.H., Jr., Campbell, E.D., Boyle, R.M., Jones, D.E., Reid, F.M., and Koplovitz, I.: Assessing Physostigmine Efficacy by Response Surface Modeling: A Comparison to Pyridostigmine Efficacy, pp. 103-120.

**Graduate School:        Lectures**

Biochemical Pharmacology  
Nurse Anesthetist  
Microbial Biotechnology  
General Pharmacology - Chemotherapy  
Director - Advanced Toxicology  
Co-Director - Environmental Toxicology  
Advanced Cardiovascular  
Biology of Cancer  
Tumor Immunology  
Tutorial  
Principles of Toxicology  
Biotechnology

**Medical School:        Lectures**

Insulin  
Antibiotics  
Review for 4th Year - Medical Students - Chemotherapy  
Review for Residents and Interns

**RESEARCH SUPPORT:**

Advisor, "Modulation of Growth and Function in Childhood Acute Lymphocytic Leukemia Cells by Interleukin-2 and Manipulation of Protein Kinase C and Calcium Homeostasis," American Cancer Society Clinical Oncology Career, Development Award, Years - 3-, \$90,000 (Dr. G. Massey, PI).

Principal Investigator, American Cancer Society, Institutional Grant, 1988-1991, \$30,000/yr.

Principal Investigator, "Models of Pulmonary Edema," Dept. Army, 1988-1991, \$1,300,000.

Principal Investigator, "Exploration of T Lymphocytes Expandability in AIDS," NIH, 1987-1990, \$465,000

Principal Investigator, Travel Funds for Symposium in Honolulu, Hawaii, D.O.D., (\$11,599) August, 1987.

Principal Investigator, "Application of Response Surface Methodologies for Determining Optimum Treatment Strategies for Nerve Threat Agents," U.S. Army, 1986-1990 (\$1,100,000).

Advisor, "Biochemical Evaluation of F-Interactions in Granulocytes," N.I.H. N.I.D.R., 7/1/86 - 6/30/90 (\$333,591).

Principal Investigator, "Phorbol Esters and Human Monocytes: Biochemical Mechanisms," NIH, 1985-1988 (\$333,106).

Principal Investigator, Extension with funds (\$120,122) of July 1988 - March 1989. "Characterization of Nerve Agent Exposure on Alveolar Macrophage Function."

Principal Investigator, "Characterization of Nerve Agent Exposure on Alveolar Macrophage Function," Army, 1985-1988 (\$354,318).

Co-Principal Investigator, Special Instrument Grant, Spex Fluorograph, DOD, 1987 (\$75,000).

Principal Investigator, "A New Protein Kinase Modulates Monocyte Activity," American Heart Association, Va. Affiliate, July 1984 - June 1985 (\$24,900).

Principal Investigator, "A Multicomponent Analysis of Steroid Release," RCDA IKO4M00565, 1979-1984 (\$219,000).

Principal Investigator, "Evaluation of Trental in Healthy and Diseased Human Subjects," Hoechst-Roussel Pharmaceuticals, 3/84 - 1/85 (\$60,000).

Principal Investigator, "Evaluation of Lever Research Products in Leukocytes from Healthy Human Subjects," Lever Brothers, Inc., renewable (\$23,000).

Principal Investigator, "Lysosomal Enzyme Release from Human Monocytes," American Cancer Society, 11/82 - 10/83, IN-105G (\$4,000).

Co-Principal Investigator, "The Effect of Selected Organic Contaminants in Drinking Water on the Functions of Reproductive, Nervous and Immune Systems - An Integrated Approach," EPA, 3/81 - 2/83 (\$918,000).

Co-Principal Investigator, "Effects of Microwave Radiation on Cells in Culture," R808617-01, 1981-83 (\$37,700) - EPA.

Co-Principal Investigator, "Metabolic Events Related to Macrophage Activation by MVE," NIH, CA29333-01, 1981-83 (\$107,500).

Co-Investigator, "Excitation Secretion Coupling in Macrophages," Cystic Fibrosis, 1982-84 (\$47,000).

Co-Principal Investigator, "X Band Radiation: Effects on Cells in Culture," Office of Naval Research, 1982-84 (\$50,000).

Co-Principal Investigator, Clinical Research Center for Periodontal Disease, 7/1/78 - 8/30/83 (\$1,912,270).

Co-Principal Investigator, "Development of Short Term Immunotoxicological Assays for the Prediction of Chronic Toxicological Response Induced by Environmental Chemicals," Army, 1979 (\$97,000).

Co-Principal Investigator, "The Effects of Selected Organic Contaminants in Drinking Water on the Functions of Reproductive, Nervous and Immune Systems - An Integrated Approach," EPA, 10/21/79 - 11/20/81 (\$177,329).

Principal Investigator, "Drugs of Abuse on Neutral Function in Tissue Culture," 1977-1979, NIDA DA 01637 (\$84,360).

Co-Investigator, "Macrophage Mediated Nucleotides," American Cancer Society, 1M 122, 1976-1978 (\$177,000).

Co-Investigator, "Cannabinoids as Anti-Neoplastic Drugs," NIH NCI-117551, 1975-1977 (\$65,000).

Principal Investigator, "Mechanism of Action of Cannabinoids in Neoplasia," NIH 17840, 1975-1977 (\$59,000).

Principal Investigator, "Cyclic Nucleotide Metabolism in Functional Mouse Adrenal Tumors Grown in Tissue Culture," A.D. Williams Research Award, 1974-1975 (\$3,000).

#### **TRAINING GRANTS:**

Research Training in Cancer Etiology and Treatment - 1978-1984  
Mechanisms of Cardiovascular Injury - 4/1/77 to 3/31/82  
Toxicology Training Grant - 1978-

Cancer Training Grant - I.D. Goldman, Principal Investigator and R. A. Carchman

#### **RESEARCH INTERESTS:**

Molecular biology of hormone cell interactions  
Relationship of signal transducers to cell function  
Drug-cell interactions

#### **INVITED SPEAKER:**

Non-Linear Dose-Response Relationships in Biology, Toxicology, and Medicine: International Conference. Presented by Belle; 5/28-30/2003: University of Massachusetts, Amherst, Massachusetts

Virginia Commonwealth University/Mathematical Association of America – Mathematical Curriculum for Health and Life Science Students, Richmond, VA - May, 2000 Sponsored by NSF

Health Canada - Evaluation of Potentially Less Hazardous Cigarette - 1998

Session Co-Chair at the Drug Information Association (DIA) Workshop - Second Annual DIA Workshop on Preclinical Computer & Statistical Applications, Baltimore, MD, 1990.

Response Surface Modeling of Multi-Agent Interactions, Parke-Davis, Ann Arbor, MI, 1988

FASEB, Model Drug Interactions, Las Vegas, NV, 1988

NINCDS sponsored, Phoenix, AZ, 1988

American Statistical Association, San Antonio, TX, 1988

People's Republic of China (Beijing, Xian, Chengdu, Chongqing, and Shanghai), August, 1987

Chaired, Symposium at the 1987 American Society of Pharmacology and Experimental Therapeutics, Honolulu, Hawaii, 1987

VIMS/VCU Immunotoxicology Symposium, Richmond, VA, 1987

Frederick Cancer Institute of the National Cancer Institute, Talk on Response Surface Modeling on Cancer Therapy, May, 1987

Center for Innovative Technology, Talk on Tumor Promoters and Oncogenes, Richmond, VA, 1987

DuPont, Glenolen, PA, 1987

Albuquerque, NM, Immunotoxicology, 1986

RJR Nabisco, Winston-Salem, NC, July, 1986

Genetic Toxicology Association, Philadelphia, Pa., May 1986

Lederle Laboratories, Indiana, May 1986

"Response surface methodologies and toxicology"

Seminar at The Minority Access to Research Careers (MARC) sponsored by FASEB at Central State University, Wilberforce, Ohio on March 13th and 14th, 1986

Co-Chairman at SOT Symposium, New Orleans, La., March, 1986

"Complex Mixtures and Multiple Agent Interactions"

Co-Chairman and presenter at the Massey Cancer Center symposium on "Biomedical Applications of Response Surface Methodologies," April, 1986

Workshop on Environmental Toxicity and the Aging Process, The Johns Hopkins Oncology Center, Baltimore, Maryland, October 1985

Invited Speaker at the Virginia Heart Institute, Richmond, VA, October 1985

Army Biosciences Review Meeting, Johns Hopkins University, MD, May 1985

Philip Morris, USA, Richmond, VA, January 1985

Inst. for Chem. Defense, Edgewood Arsenal, MD, June, Sept. 1984, April 1985

Chemical Industry Institute of Toxicology, Research Triangle Park, NC, September 1984

University of Utah, Salt Lake City, UT, August 1984

National Institutes of Health, Bethesda, MD, August 1984

FASEB Workshop, Saxton River, VT, July 1984

Emory University School of Medicine, Atlanta, GA, November 4, 1983

Immunotoxicology Workshop, National Institute of Environmental Health Sciences, Research Triangle Park, NC, October 17-18, 1983

Clinical Research Center for Periodontal Disease, Symposium, February 25, 1983, Medical College of Virginia

Symposium on Environmental Health Research, April 9-10, 1983, Chicago, IL

Chemical Industry Institute of Toxicology, 1982

National Institute of Environmental Health Science, 1982

State Water Control Board, Henrico, VA, 1981

EPA-HERL Symposium, Cincinnati, OH, 1981

Mount Zion Research Center, San Francisco, CA, 1980

Georgetown University, Washington, DC, 1980

International Study Center for Environmental Health Sciences - Halocarbon Symposium, Washington, DC, 1980

International Pharmacology Meetings, France, Drug Abuse Symposium, 1978

International Pharmacology Meetings, Finland, Marijuana Satellite Symposium, 1976

Prepared health assessment chapters for consent decree documents for the Environmental Protection Agency (Drinking Water) on:

- 1) Ethylbenzene
- 2) Diphenylhydrazine

Reviewed for the EPA the health effects assessment chapters on:

- 1) Benzidine
- 2) Chlorinated phenols
- 3) Naphthalene
- 4) Nitrobenzene
- 5) Dichloropropane/Dichloropropene
- 6) Chlorinated benzenes
- 7) 3,3'-Dichlorodibenzidene
- 8) Mercury
- 9) Phthalate esters

Prepared and published human health effects documents for EPA on:

- 1) Trichloroethylene
- 2) Methylchloroform
- 3) Methylene chloride



4) Freon 113

5) Phthalate esters

Prepared document for the American Petroleum Institute on:

1) Chloroform

Prepared document for General Dynamics, Inc. on:

1) Trichlorotrifluoroethane (FC-113)

#### CONSULTANT FOR:

Advisory Board, Virginia Center for Innovative Technology, Biotechnology

National Institute of Neurological Childhood Disease and Stroke

U.S. Forestry Service and Bureau of Land Management

Center for Disease Control, Center for Environmental Health and Injury Control

NIH Epilepsy Branch

Chemical Manufacturers Association on the Water Criteria Assessment - EPA Documents on:

1) Benzene

Scientific Applications Inc.

Department of the Army

Hoechst-Roussel

Lever Research

Rhone Poulenc

Eastern Research Group

Environmental Protection Agency

Department of Justice

Philip Morris, USA

#### PUBLICATIONS: (Peer Reviewed)

##### Manuscripts:

1. Weinstein, I.B., Carchman, R.A., Marner, E. and Hirschberg, E.: Miracil D: Effect on nucleic acid synthesis, protein synthesis, and enzyme induction in *Escherichia coli*. *Biochim. Biophys. Acta* 142:440-449, 1967.
2. Hirschberg, E., Weinstein, I.B., Gersten, N., Marner, E. and Carchman, R.A.: Structure-activity studies on the mechanism of action of miracil D. *Cancer Res.* 28:601-607, 1968.
3. Hirschberg, E., Ceccarini, C., Osnos, M. and Carchman, R.A.: Effects of inhibitors of nucleic acid and protein synthesis on growth and aggregation of the cellular slime mold *Dictyostelium discoideum*. *Proc. Natl. Acad. Sci.* 61:316-323, 1968.
4. Carchman, R.A., Hirschberg, E. and Weinstein, I.B.: Miracil D: Effect on the viscosity of DNA. *Biochim. Biophys. Acta* 179:158-164, 1969.
5. McMillan, D.E., Wolf, P.S. and Carchman, R.A.: Antagonism of the behavioral effects of morphine and methadone by narcotic antagonists in the pigeon. *J. Pharmacol. Exp. Therap.* 175:443-458, 1970.
6. Carchman, R.A., Jaanus, S.D. and Rubin, R.P.: The role of adrenocorticotropin and calcium in adenosine cyclic 3',5'-phosphate production and steroid release from the isolated, perfused cat adrenal gland. *Molec. Pharmacol.* 7(50):491-499, 1971.
7. Rubin, R.P., Carchman, R.A. and Jaanus, S.D.: Further studies on the relationship between cyclic AMP levels and adrenocortical activity. *Endocrinol.* 91(4):887-895, 1972.
8. Rubin, R.P., Carchman, R.A. and Jaanus, S.D.: The role of calcium and adenosine cyclic 3',5'-phosphate in the action of adrenocorticotropin. *Nature* 240(100):150-151, 1972.

9. Rein, A., Carchman, R.A., Johnson, G.S. and Pastan, I.: Simian virus 40 rapidly lowers cAMP levels in mouse cells. *Biochem. Biophys. Res. Commun.* 52:899-904, 1973.
10. Willingham, M.C., Carchman, R.A. and Pastan, I.: A mutant of 3T3 cells with cyclic AMP metabolism sensitive to temperature change. *Proc. Natl. Acad. Sci.* 70(10):2906-2910, 1973.
11. Rubin, R.P., Jaanus, S.D., Carchman, R.A. and Puig, M.: Reversible inhibition of ACTH-induced corticosteroid release by cycloheximide: Evidence for an unidentified cellular messenger. *Endocrinol.* 93(3):575-580, 1973.
12. Anderson, W.B., Russell, T.R., Carchman, R.A. and Pastan, I.: Interrelationship between adenylate cyclase activity, adenosine 3',5'-cyclic monophosphate levels, and growth of cells in culture. *Proc. Natl. Acad. Sci.* 70:3802-3805, 1973.
13. Carchman, R.A., Johnson, G.S., Pastan, I. and Scolnick, E.M.: Studies on the levels of cyclic AMP in cells transformed by wild-type and temperature-sensitive Kirsten sarcoma virus. *Cell* 1:59-64, 1974.
14. Johnson, G.S., D'Armiento, M. and Carchman, R.A.: N<sup>6</sup>-substituted adenines induce cell elongation independent of the intracellular cyclic AMP levels. *Exp. Cell Res.* 85:47-56, 1974.
15. Munson, A.E., Harris, L.S., Friedman, M.A., Dewey, W.L. and Carchman, R.A.: Antineoplastic activity of cannabinoids. *J. Natl. Can. Inst.* 55(3):597-602, 1975.
16. Rubin, R.P., Laychock, S.G., Warner, W. and Carchman, R.A.: The interaction of cyclic AMP, prostaglandins, and calcium on secretion by the adrenal gland. Estratto da "Studi Sassaesi," Vol. 53, Fasc. 1-2, pp. 1-4, 1975.
17. Carchman, R.A., Harris, L.S. and Munson, A.E.: The inhibition of DNA synthesis by cannabinoids. *Canc. Res.* 36:95-100, 1976.
18. White, A.C., Munson, J.A., Munson, A.E. and Carchman, R.A.: The effects of tetrahydrocannabinol in Lewis lung adenocarcinoma cells in tissue culture. *J. Natl. Can. Inst.* 56(3):655-658, 1976.
19. Rechler, M.M., Bruni, C.B., Podskalny, J.M. and Carchman, R.A.: DNA synthesis in cultured human fibroblasts. *Supramolec. Results* 41:159-164, 1976.
20. Rechler, M.W., Bruni, C.B., Podskalny, J.M., Warner, W. and Carchman, R.A.: DNA synthesis in cultured human fibroblasts: Modulation by 3',5'-cyclic adenosine monophosphate. *Exp. Cell Res.* 104:411-422, 1977.
21. Warner, W., Harris, L.S. and Carchman, R.A.: Inhibition of corticosteroidogenesis by D(-)-tetrahydrocannabinol. *Endocrinol.* 101:1815-1820, 1977.
22. End, D.W., Thoursen, K., Dewey, W.L. and Carchman, R.A.: A comparative study of the disposition of (-)-tetrahydrocannabinol in neuroblastoma and glioma cells in tissue culture: In relation to cellular impairment. *Molec. Pharmacol.* 13:867-871, 1977.
23. Warner, W. and Carchman, R.A.: Effects of ruthenium red, A23187 and D-600 on steroidogenesis in Y-1 cells. *Biochim. Biophys. Acta* 528:409-415, 1978.
24. Harris, L.S., Carchman, R.A. and Martin, B.R.: Evidence for the existence of specific cannabinoid binding sites. (Otto Kraye Symposium, March 10-12, 1978, Tuscon, Arizona) *Life Sciences* 22:1131-1138, 1978.
25. Goodell, E.M., Bilgin, S. and Carchman, R.A.: Biochemical characteristics of phagocytosis in the P388D1 cells. *Exp. Cell Res.* 114:57-62, 1978.
26. Aceto, M., Carchman, R.A., Harris, L.S. and Flora, R.: Caffeine elicited withdrawal signs in morphine-dependent rhesus monkeys. *Eur. J. Pharmacol.* 50:203-207, 1978.
27. Ellis, E.F., Shen, J.C., Schrey, M.P., Carchman, R.A. and Rubin, R.P.: Prostacyclin: A potent stimulator of adrenal steroidogenesis. *Prostaglandins* 16:483-490, 1978.

28. Carmines, E.L., Carchman, R.A. and Borzelleca, J.F.: Kepone: Cellular sites of action. *J. Tox. Appl. Pharmacol.* 49:543-550, 1979.
29. End, D.W., Carchman, R.A., Ameen, R. and Dewey, W.L.: Inhibition of rat brain mitochondrial calcium transport by chlordecone. *Tox. Appl. Pharmacol.* 51:189-196, 1979.
30. Laskin, D.L., Laskin, J.D., Weinstein, I.B. and Carchman, R.A.: Modulation of phagocytosis by tumor promoters and epidermal growth factor in normal and transformed macrophages. *Can. Res.* 40:1028-1035, 1980.
31. Carchman, R.A., Shen, J.C., Bilgin, S. and Rubin, R.P.: Diverse effects of protacyclin and corticotropin on calcium modulation of cyclic AMP and steroid production in normal and tumor cells of adrenal cortex. *Biochem. Pharm.* 29:2213-2218, 1980.
32. Kessler, F.K., Goodell, E.M. and Carchman, R.A.: P338D1: Calcium and the phagocytosis of *Listeria monocytogenes*. *Cell Calcium* 1:181-194, 1980.
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